# National Pipeline Mapping System (NPMS) Intrastate Operator Workshop Washington, DC June 22, 2000

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# What is the NPMS?

A geographic information system (GIS) that will provide:

- Locational information about pipelines and LNG facilities -- their proximity to places we must protect
- One national standard for pipeline mapping data
- A system that will meet the intent of the `92 & `96 reauthorization mandates

# Accountable Pipeline Safety and Partnership Act of 1996

- An Operator shall maintain and provide pipelines information to DOT and state officials.
- The information shall include accurate maps and supplementary geographic description.
  - Transmission and significant gas distribution
  - Major hazardous liquid

# NPMS - Voluntary Approach

Location & attribute data on:

- Natural gas transmission pipelines
- Hazardous liquid trunklines
- LNG facilities

The pipeline & LNG data will be created through a joint initiative between Federal & State government agencies & the pipeline industry.

# Transmission Pipeline

- Transports gas from a gathering line or a storage facility to a distribution center, storage facility, or Large Volume Customer that is not downstream from a distribution center;
- Operates at a hoop stress of 20% or more of SMYS, or
- Within a storage field

# Large Volume Customer

- May receive similar volumes of gas as a distribution center, and includes factories, power plants, and institutional users of gas.

# NPMS - Structure

- National Repository
- Cooperative Agreements - Ongoing activity to recruit state agencies and universities to participate as a state repository
  - CBD Announcement
  - Next announcement - January 2001

# What Else Will the NPMS Contain?

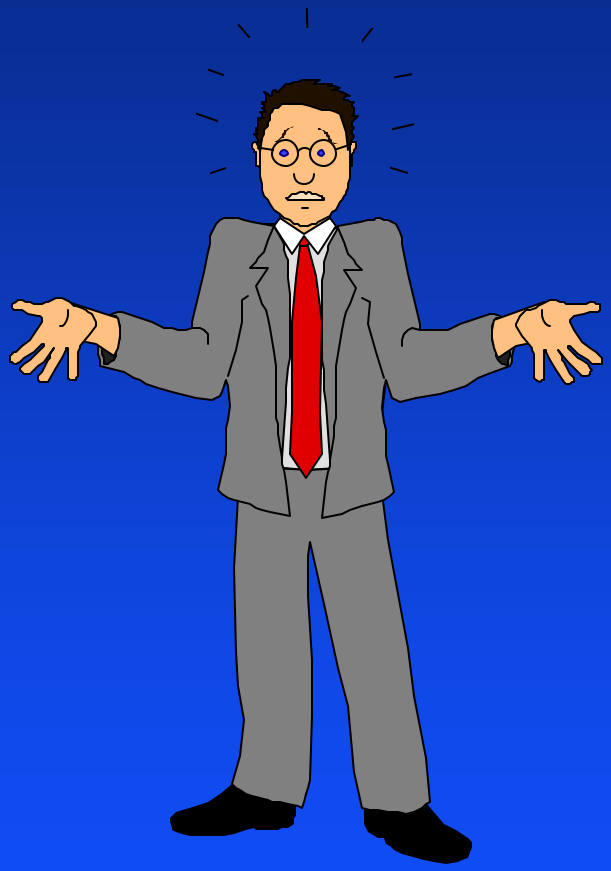
The system will also contain:

- High Consequence Areas
  - Unusually Sensitive Areas (USAs)
  - High Population Areas
  - Navigable Waterways
- Natural disaster probability & consequences
- Accurate base layers - USGS Topos
- Other transportation networks

# Who Has Partnered in the NPMS Development?

- United States Geological Service
- Department of Energy
- Federal Energy Regulatory Commission
- Environmental Protection Agency
- States
- Industry

# Why do we need an NPMS?



# Why do we need an NPMS?

- Expectations and perceptions
- Credibility
- Changing technology
- Decentralized oversight to regional and state level
- Alternative regulatory approaches

# Government Needs

- Enhance ability to determine the level of safety
- Provide access to a central source of data
- Integrate pipeline location data with other data
- Assess potential response situations
- Support planning activities
- Respond to Congressional, Federal, state & public requests

# Industry Needs

- Build on existing pipeline maps and other company resources.
- Structure the system to evolve with industry's mapping capability.
- Data requested from industry should add value to current industry needs.

# Common Needs of Government and Industry

- Design a more accurate mapping system that shows major the pipelines & LNG facilities
- Implement a cost-effective method to exchange pipeline data
- Minimize burden on industry to supply data to multiple government agencies
- Increase ability to access information & respond to emergency situations
- Standardize pipeline location data
- Protect confidential & proprietary business information

How will data be

the NPMS used?

# The NPMS will help OPS to:

- Provide a more comprehensive national picture of the nation's pipelines & LNG facilities
- Focus inspection resources
- Plan for emergencies & natural disasters
- Decide if or where extra safety & environmental precautions are needed
- Exchange data with one another in a common format

# Why Participate?

- Partnership Works
  - Jointly considered needs
  - Thorough
  - Timely
  - Flexible
  - Cost effective

# Voluntary Participation vs. Regulatory Mandate

- The Accountable Pipeline Safety & Partnership Act mandates that OPS adopt rules requiring pipeline operators to create & maintain accurate maps on:
  - Natural gas transmission pipelines
  - Significant distribution pipelines
  - Major liquid pipelines

# Voluntary vs. Mandate con't.

- A description of each pipeline:
  - An inventory of the age and material of the pipeline
  - Leak history
  - Diameter
  - Products transported
  - Any other information OPS considers useful

# Voluntary Participation:

- Fewer requirements than the mandate:
  - Natural gas distribution pipelines are not included.
  - Age, material, leak history are not included.
  - Target goal of 500 feet for positional accuracy.
- Minimum burden on the operator.
- OPS plans to meet the intent of the mandate through voluntary participation by operators.

# Strategies for a Voluntary Approach:

- Maintain flexibility in submitted formats.
- Formalize mapping partnerships with other federal & state agencies & industry.
- Create pipeline data standards that are consistent with FGDC standards.
- Continue the team approach.
- Expand communications about the program.

# Data Requested

- Natural gas transmission pipelines
- Liquid trunklines
- LNG facilities

Intrastate operators must send their submissions to a state repository if one exists for the state they operate within - regardless of whether it is a digital data or paper map submission.

# Multi-Year Process

- Pipeline data improved over time.
- Many companies are migrating from paper to digital over time to meet other business needs.
- Gov’t & industry are working together to create the NPMS in the most cost beneficial way

# NPMS Data Security

- Community Right-to-Know VS. Security
- Presidential Decision Directive 63
  - Pipelines identified as critical infrastructure
  - Does not address pipeline data
- Results of Meeting with CIAO's.
  - Tom Falvey - DOT, Associate Director for National Security
  - Paula Scalingi - DOE, Director for Office of Critical Infrastructure Protection

# Operator Outreach

- API and INGAA - targeting the large interstate natural gas transmission and hazardous liquid operators
- AGA and APGA - targeting the intrastate natural gas transmission operators

# What is Our NPMS Timeline?

- Collection of 70% of the pipeline data by the end of calendar year 2000.
- As of June 2, 2000, the NPMS had received 16% of the pipeline mileage.

# NPMS Web Sites

www.npms.rspa.dot.gov

- NPMS homepage

www.npms.rspa.dot.gov/sub_stats.htm

- Contains the submission statistics info.

# Questions?

National Pipeline Mapping System

# *Standards for Pipeline and LNG Operator Submissions*

# *Standards for the NPMS National and State Repositories*

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# *Standards for Pipeline and LNG Operator Submissions*

- "Submission Standards"
  - Attribute Data
  - Geospatial Data
  - Metadata

# Submission of Data

- Gas transmission (as defined by US DOT) & liquid trunk pipeline data.
- Active Liquefied Natural Gas (LNG) facility data.
- Target goal of 500 foot positional accuracy.

# National Pipeline Mapping System

Standards for

Pipeline and Liquefied Natural Gas

Operator Submissions

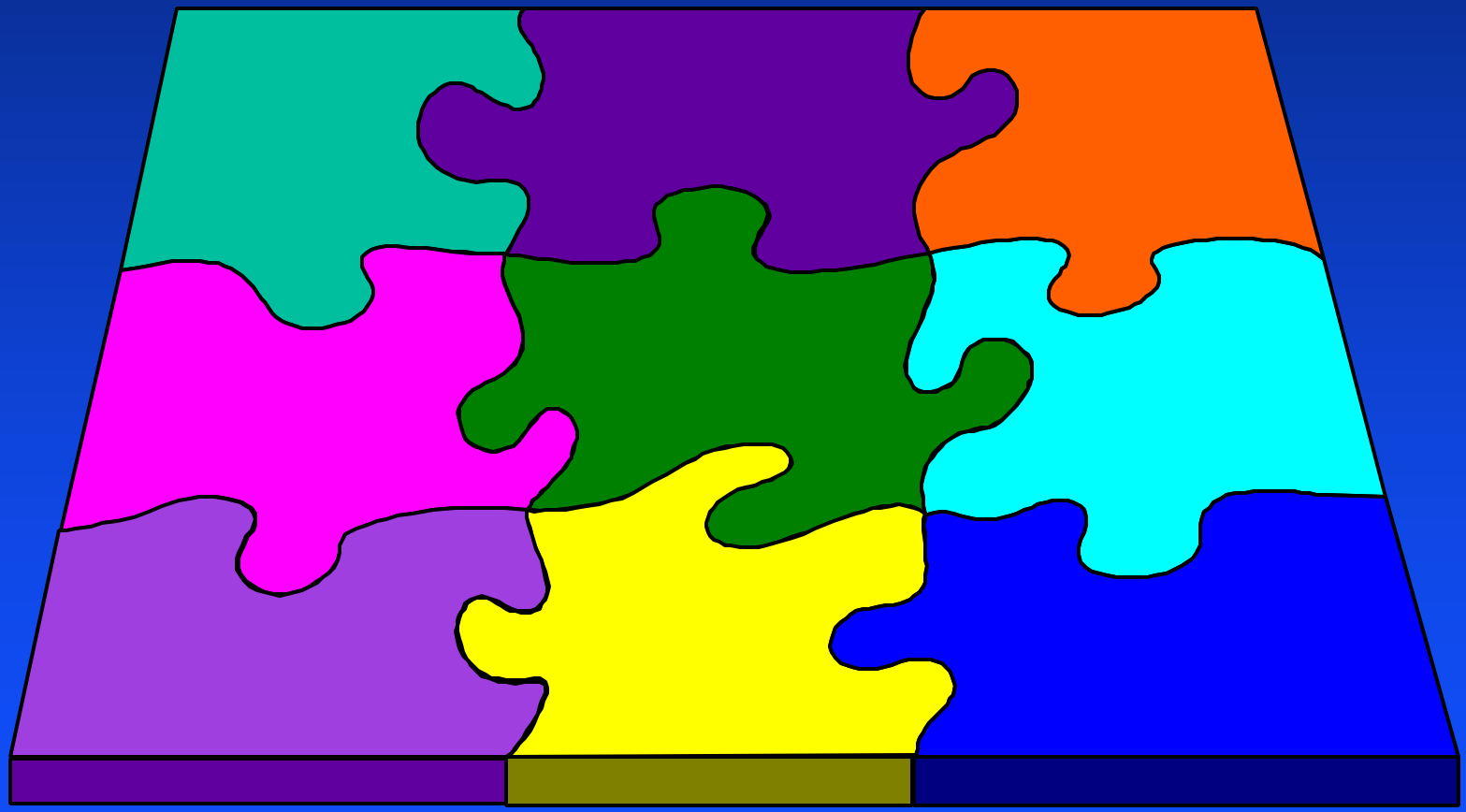
March 1999

# CONTACTS

- OPS NPMS Contact
- NPMS Repository Contacts
  - National Repository
  - State Repositories
- User Fee (OPS_ID) Contact

# SECTION 1: INTRODUCTION

# NPMS Repositories



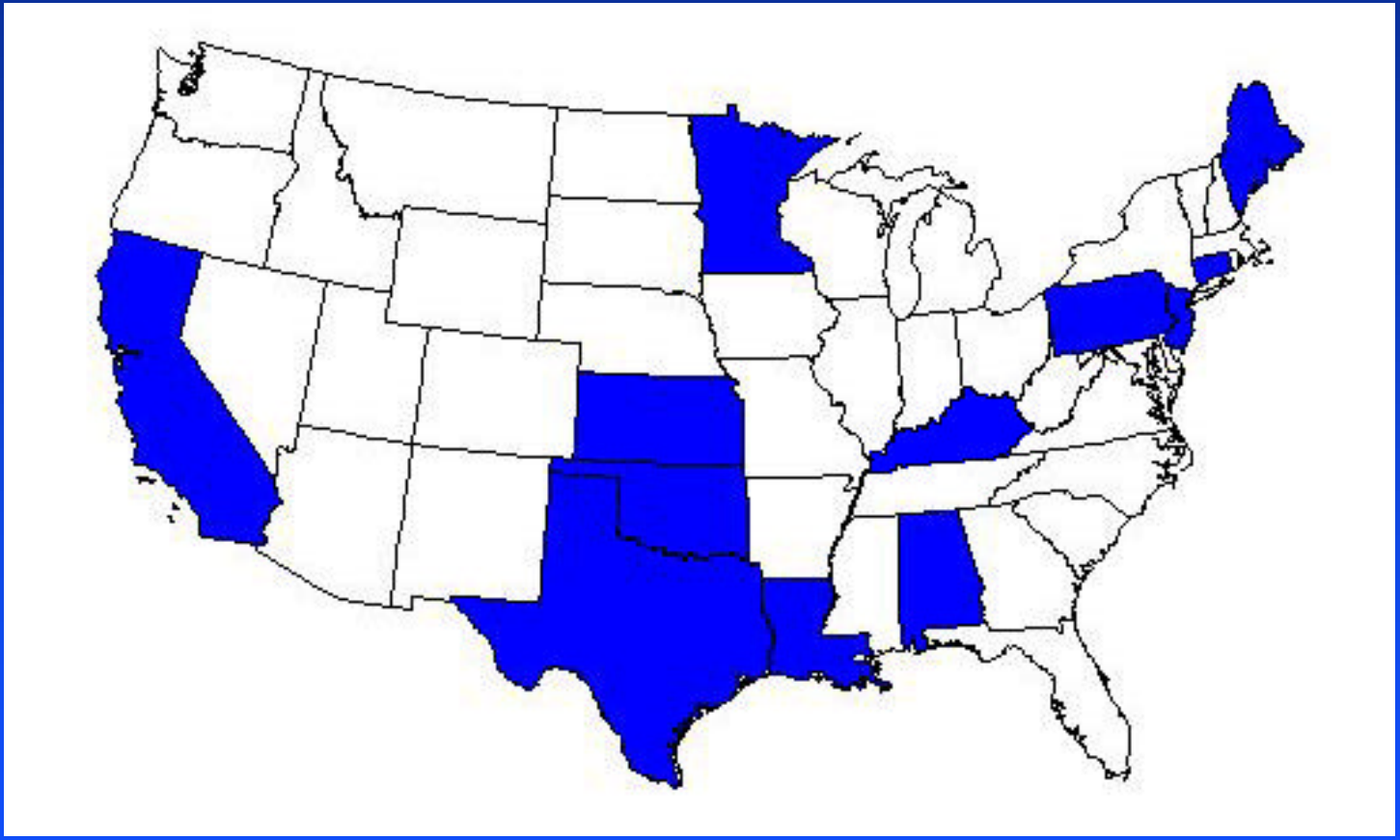
# NPMS Structure

- Consists of:
  - Multiple State Repositories -- maintains data within their state boundaries.
  - Single National Repository -- maintains the pipeline data for all other areas.

# The State Repository

- The NPMS will be made up of State Repositories and a National Repository.
- The State Repositories will be responsible for maintaining the pipeline information within their state boundaries.
- The State Repositories will forward information to the National Repository.

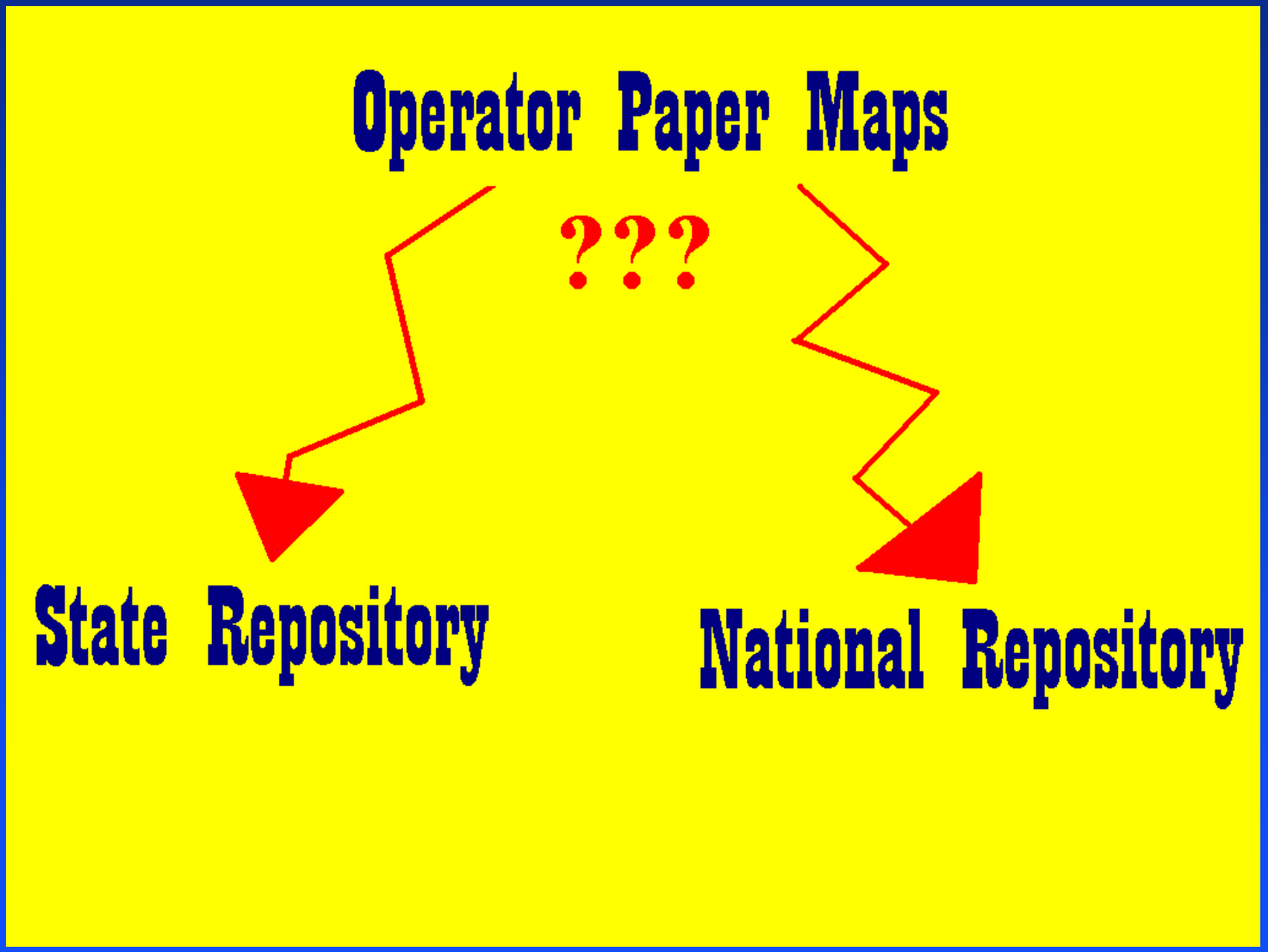
# NPMS State Repositories



# The National Repository

- The National Repository will be responsible for creating & maintaining pipeline data for areas without a State Repository.
- Data entry & maintenance for the National Repository may be performed by several mapping and data contractors.
- The National Repository will be responsible for combining State & National Repository Data into a nation wide coverage.

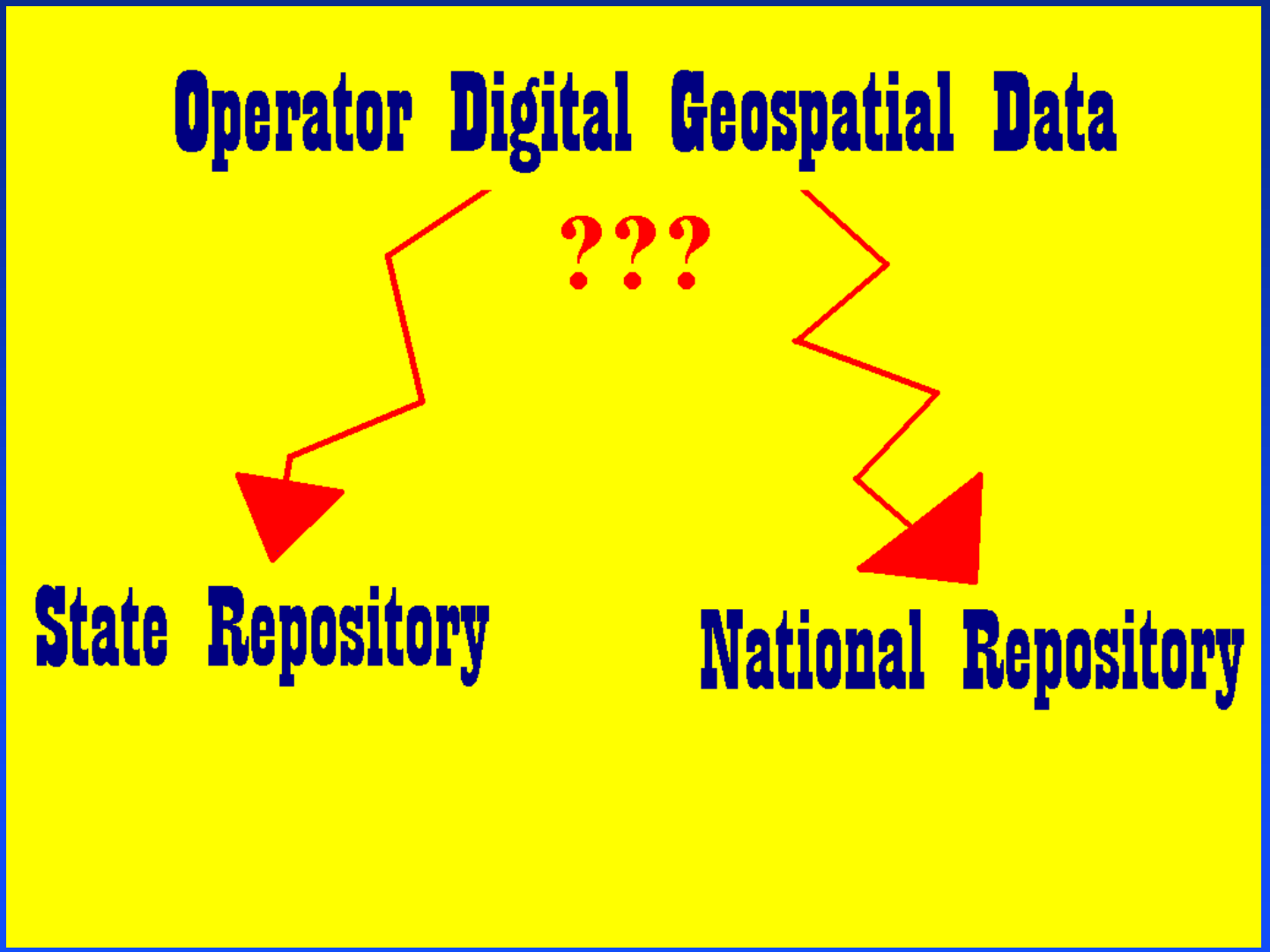
# Paper Data Submissions



# Paper Map Submission

- NO STATE REPOSITORY -- send paper maps, located within that state, to the national repository.
- STATE REPOSITORY -- send paper maps, located within that state, to the state repository.

# Digital Data Submissions



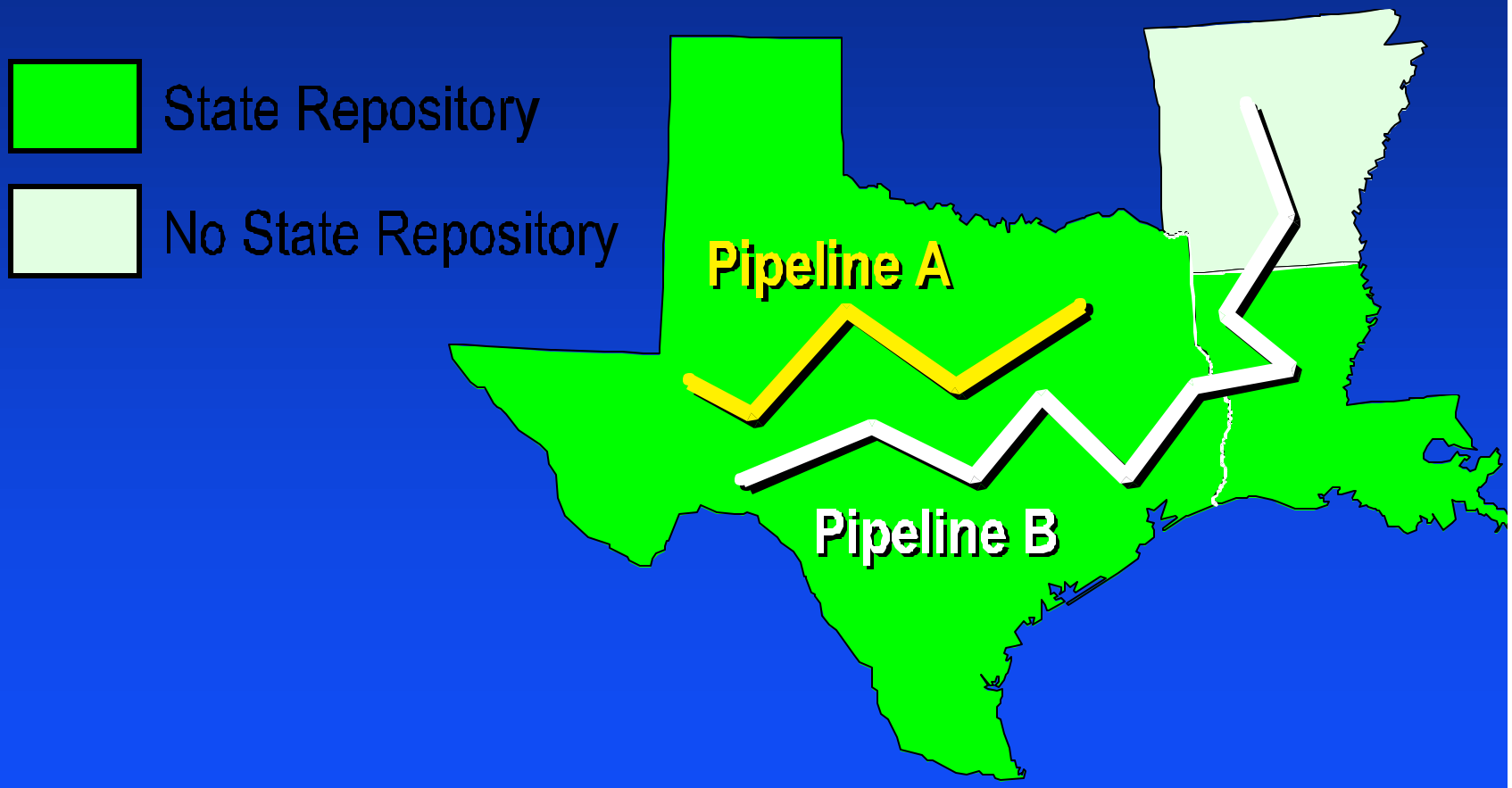
# Digital Data Submission

- NO STATE REPOSITORY -- send digital data, located within that state, to the national repository
- STATE REPOSITORY -- send digital geospatial data, located within that state, to the state repository OR send the data to the national repository.

# Digital Data Submission

- The operator has the choice of sending an entire digital data set to the national repository OR dividing the data up and sending to the individual state repositories.

# Data Submission Example



# Special Instructions for CA

- The California State Fire Marshal is the State Repository for CA.
- The CA Repository is only collecting liquid trunkline data.
- Natural Gas and LNG Facility data should be sent directly to the National Repository.

# Special Instructions for States with Existing Pipeline Data

- The State Repositories in Texas, Louisiana, and Minnesota already have converted pipeline operator data in their states.
- Operator's in those states should check with the individual state repositories to determine if their previous submissions will meet the NPMS Standards.

# Distribution of NPMS Data

- The pipeline facility data will be made available to other government agencies, the pipeline industry, and the public to the extent required under FOIA.
- Repositories may charge fees for specialized products they are asked to produce.

# SECTION 2: GENERAL REQUIREMENTS (KEY TERMS AND DEFINITIONS)

# Key Terms:

- Natural Gas Transmission Pipeline
- Hazardous Liquid Trunkline
- Pipeline System
- Pipeline Segment -- A pipeline system should only be broken into multiple pipeline segments for two reasons:
  - To represent a branch or intersection with another pipeline segment, and/or
  - To allow for a change of associated attributes such as diameter.

# Key Terms con't.

- Pipeline Intersection
- Pipeline Crossing
- Pipeline Corridor

# NPMS File Naming Conventions

- Attempt to use DOS 8.3 file naming conventions.
- Formula:
  - type of file code + OPS_ID + hyphen + 1-digit sequential number + 3-digit alpha extension
  - sample file name: G12345-1.DWG
  - “G” for geospatial only, “A” for attribute data only, “B” for geospatial and attribute, and “M” for metadata.

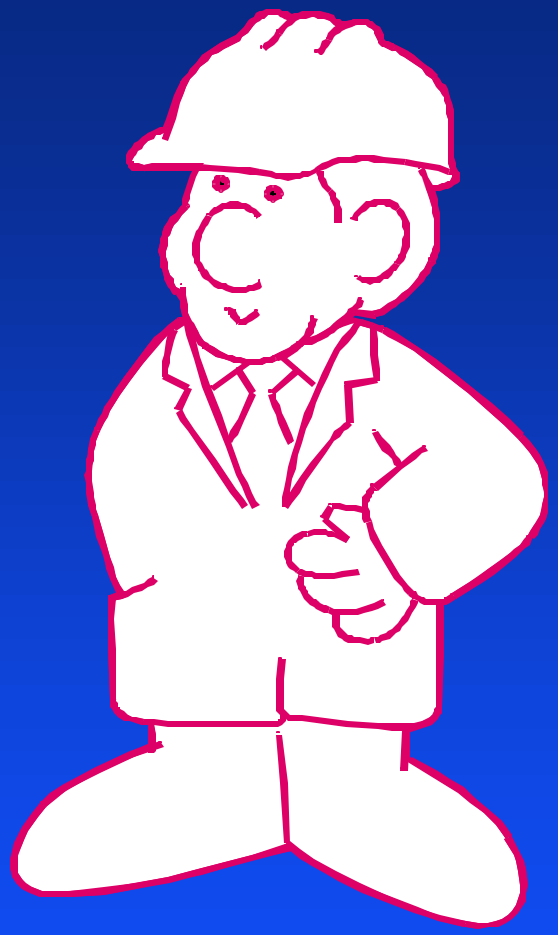
# Types of NPMS Submissions

- Additions - contain only data that is new to the NPMS. REVIS_CD = “A”
- Modifications - contain only modified data being submitted to the NPMS. REVIS_CD = “M” or “D”
  - Geospatial Modification - should include geospatial, attribute, and metadata.
  - Attribute *Only* Modification - used only when changes affect the facility attributes.
  - Metadata *Only* Modification - used only when changes affect the metadata.

# NPMS Submissions con't.

- Change of Operator Report
- Update Contact Information
- Change Pipeline System Status

# SECTION 3: ATTRIBUTE INFORMATION



# Attribute Data

- Consists of tabular data representing the characteristics of the pipeline or LNG facility.
- Usually stored within a database management system (DBMS).

# Attribute Data

- Rules for Data Input
  - Use only UPPERCASE when defining field names.
  - Use only UPPERCASE when inputting data into the attribute tables.
  - Omit all punctuation other than (.), ( ), (\), (:), (,), and (-).
  - Use (;) ASCII- delimited files.
  - Be consistent with abbreviations.
  - Use the correct OPS_ID.

# Pipeline Attribute Submissions

- OPER_LINK
  - Link between the geospatial elements (lines or points) and their respective attribute records. Assigned by the operator's software package (e.g., COVER-ID, MSLINK_ID)
  - Necessary to ensure that that repositories can re-establish the link between the geospatial and attribute data.
  - Particularly important for ASCII submissions.

# Pipeline Attribute Submissions

- OPS_ID
  - Accounting number assigned by the OPS for user fee payments to the company that physically operates the pipeline.
  - The number is commonly known to the operator's accounting office.
  - The number is also available by contacting Lisa Kokoszka at the OPS at 202-366-4554.

# Pipeline Attribute Submissions

- OPER_NM
  - The name of the company that physically operates the pipeline.

# Pipeline Attribute Submissions

- SYS_NM
  - Assigned by the operator.
  - The operator’s name for a grouping of pipelines.

# Pipeline Attribute Submissions

- SUBSYS_NM
  - A unique name (within the operating company) for a smaller subsection of a pipeline system.
  - A subset of SYS_NM

# Pipeline Attribute Submissions

- PLINE_ID
  - This is a unique identifier (within the operating company) for a specific pipeline segment within a system or group of pipelines.
  - A subset of SYS_NM and SUBSYS_NM.

# Pipeline Attribute Submissions

- DIAMETER
  - The nominal diameter of the pipeline, in inches (two decimal places included ##.##).

# Pipeline Attribute Submissions

- COMMODITY1
  - Abbreviation for the primary or most common commodity carried by the pipeline.
  - HG, CRD, LPG, NG, PRD, AA, CO2, NGL, HVL are valid responses.

# Pipeline Attribute Submissions

- COMMODITY2
  - Abbreviation for the secondary commodity carried by the pipeline.
  - Should be filled in if the pipeline transports more than one commodity.
  - HG, CRD, LPG, NG, PRD, AA, CO2, NGL, HVL are valid responses.

# Pipeline Attribute Submissions

- COMMODITY3
  - Abbreviation for the tertiary commodity carried by the pipeline.
  - HG, CRD, LPG, NG, PRD, AA, CO2, NGL, HVL are valid responses.

# Pipeline Attribute Submissions

- CMDTY_DESC
  - Descriptive information on the commodities carried.
  - A listing of phased flow products or the names of the exact products transported may be listed.

# Pipeline Attribute Submissions

- INTERSTATE
  - (Y)es / (N)o designator to identify whether the pipeline is an interstate pipeline (refer to the OPS definition in the Glossary of the *Operator Standards*.

# Pipeline Attribute Submissions

- STATUS_CD
  - Identifies the current status of the pipeline.
  - I (in service), B (abandoned), and R (retired) are valid responses.

# Pipeline Attribute Submissions

- QUALITY_CD
  - Operator's estimate of the positional accuracy of the submitted geospatial pipeline data.
  - How good is the data?
  - E (excellent: within 50 feet), V (very good: 50-300 feet), G (good: 301-500 feet), P (poor: 501-1000 feet), U (unknown) are valid responses.

# Pipeline Attribute Submissions

- REVIS_CD
  - Identifies, to the repository, how to treat your submission.
  - A (addition), M (modification), D (deletion) are valid responses.

# Pipeline Attribute Submissions

- META_NAME
  - The name of the metadata file (created from the NPMS metadata template) associated with this data.
  - Comply with DOS (8.3 format) naming conventions.

# LNG Attribute Submissions

- Previously discussed attributes.
  - OPER_LINK
  - OPS_ID
  - OPER_NM
  - STATUS_CD
  - QUALITY_CD
  - REVIS_CD
  - META_NAME

# LNG Attribute Submissions

- LNG_NM
  - Assigned by the operator.
  - The operator’s name for the LNG facility.

# LNG Attribute Submissions

- LNG_ID
  - This is a unique identifier (within the operating company) for an LNG facility.

# Understanding Pipeline System and Segment Attributes

- Some NPMS attributes refer to the entire system while others might refer to only segments of the system.
- Important to “segment” your pipeline system when there is a change in NPMS attributes.

# Understanding Pipeline System and Segment Attributes con't.

- Fields that are constant through the system:
  - OPS_ID
  - OPER_NM
  - SYS_NM
  - COMMODITY1
  - COMMODITY2
  - COMMODITY3
  - CMDTY_DESC
  - INTERSTATE
  - META_NAME

# Understanding Pipeline System and Segment Attributes con't.

- Field names that may change:
  - OPER_LINK (must be unique for each segment)
  - SUB_SYS_NM
  - PLINE_ID
  - DIAMETER
  - STATUS_CD
  - REVIS_CD

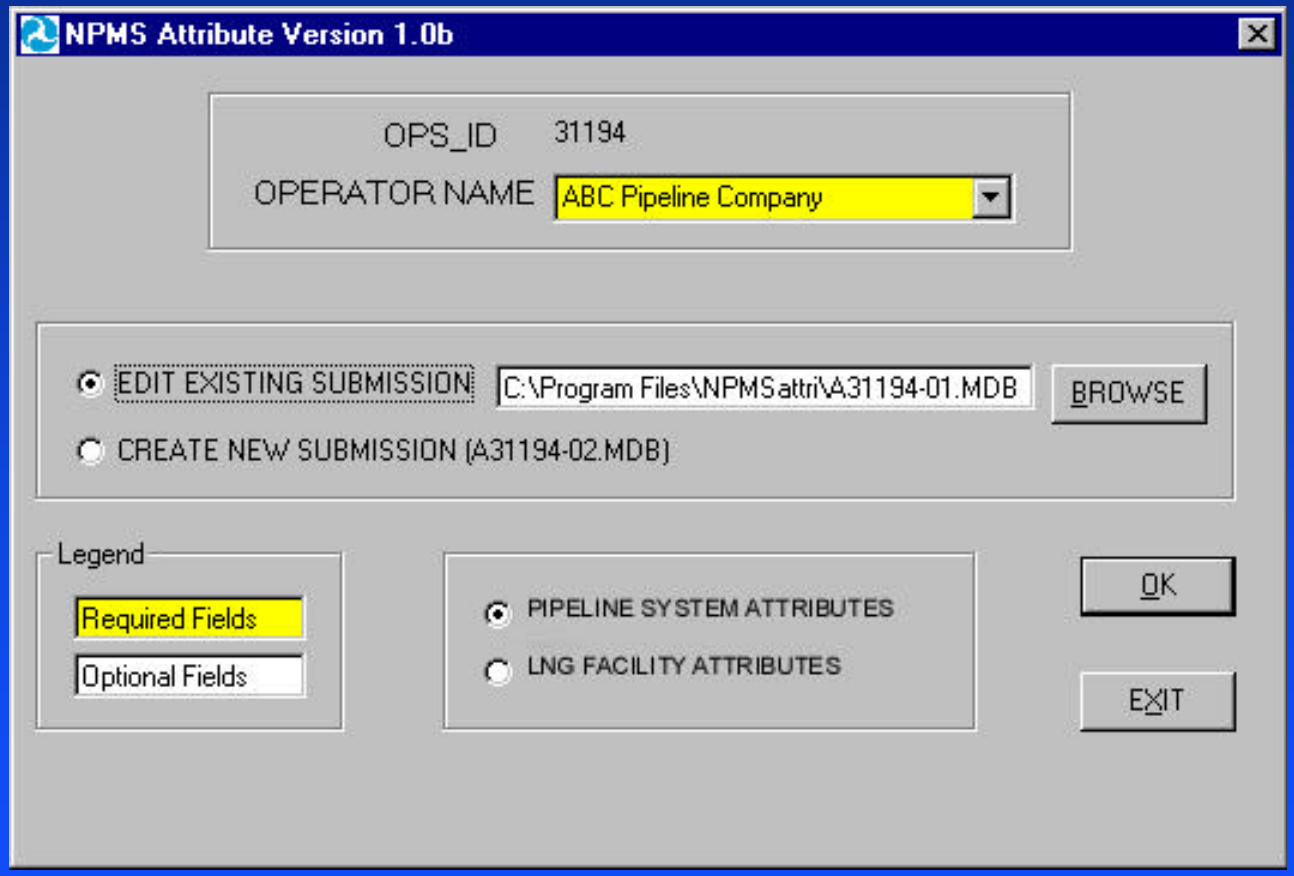
# Building the Attribute Data File

- Attribute Submission Options
  - Contained as part of an exported data file directly from a GIS.
  - Stored as a .DBF file sent separately from the geospatial file.
  - Microsoft Access (.MDB) file generated by the *NPMS Attribute Data Template*.
  - ASCII semicolon-delimited text file.
  - Hand written on submitted hard copy maps.

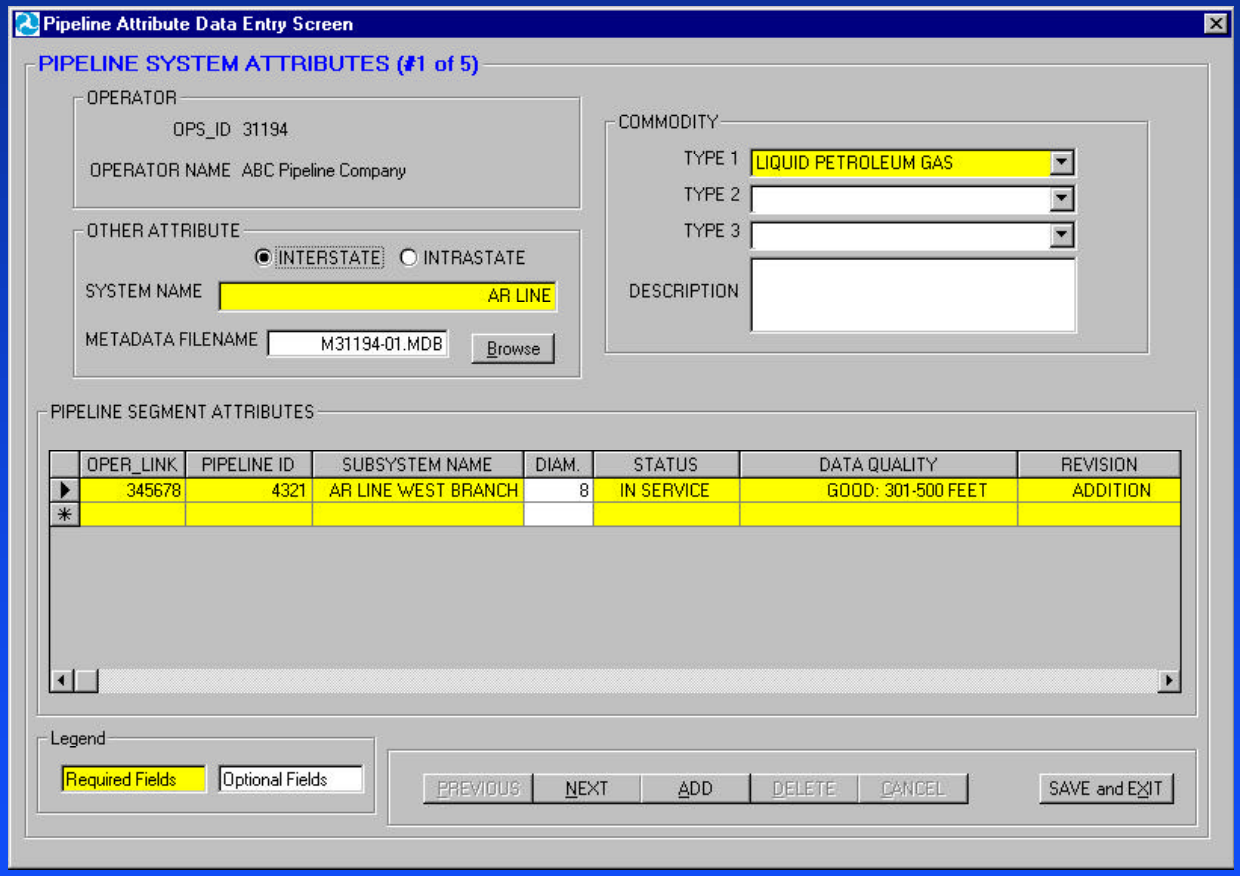
# Using the *NPMS Attribute Data Template*

- Reasons for using the template:
  - FREE
  - Easy to install
  - Ensures that the NPMS repositories will be able to read your data.
  - Creates a file that can be edited.
  - Fully supported by the repositories if you run into trouble.
  - Detailed instructions included in the Standards.

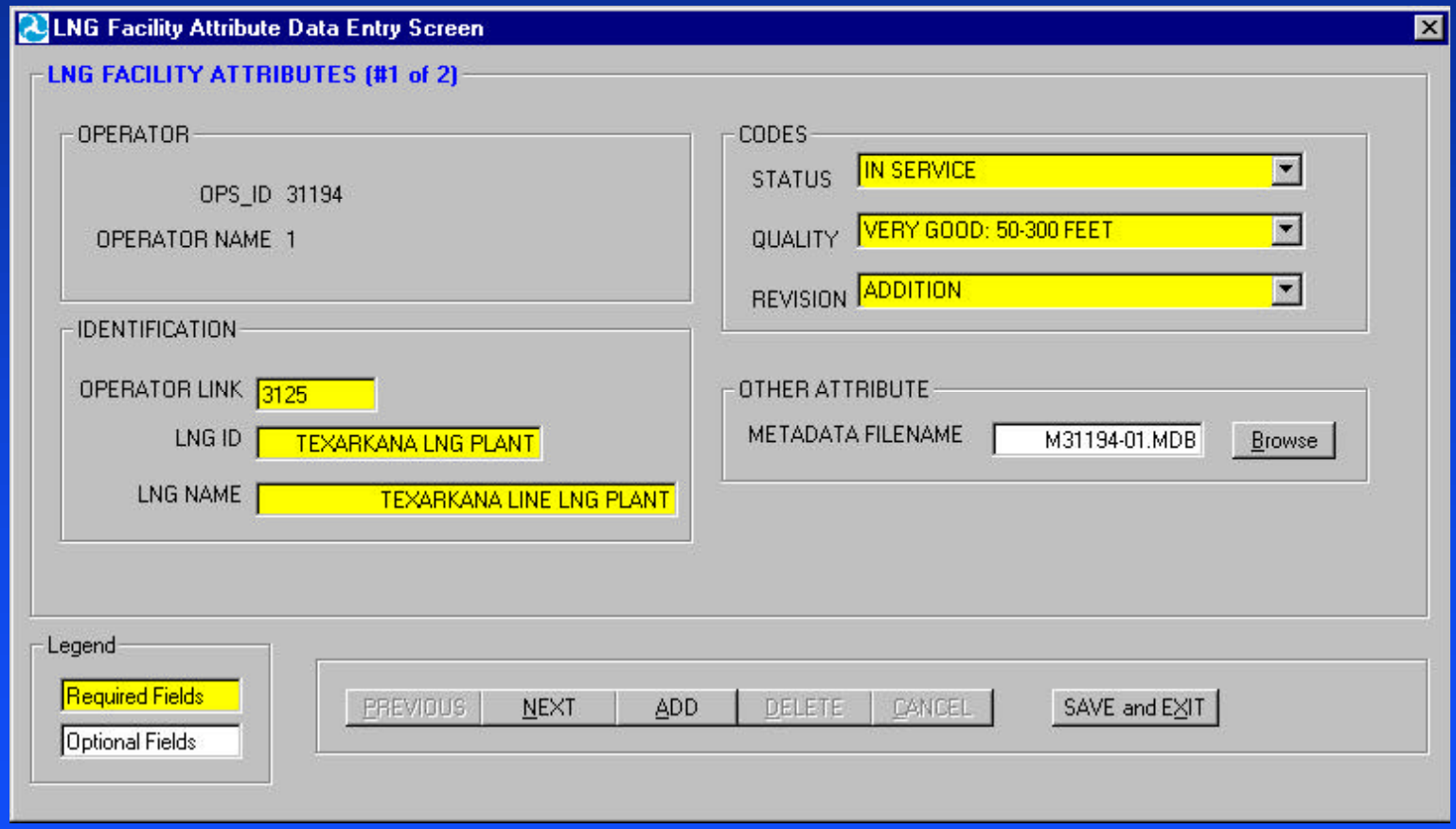
# Start-up Screen



# Data Entry Screen - Pipelines



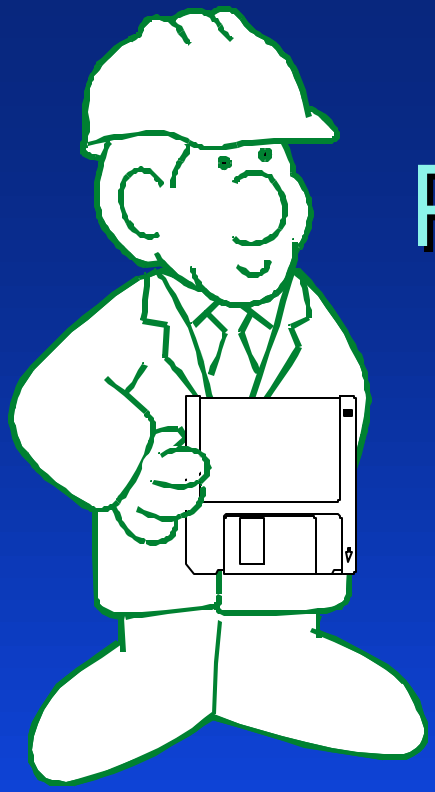
# Data Entry Screen - LNG Facility



# SECTION 4:
# GEOSPATIAL DATA

# Geospatial Data

- Consists of pipeline data that has been geographically referenced to known points on the surface of the Earth.
  - Latitude & longitude coordinate values representing the actual pipeline and pipeline ROW location. (linear features)
  - Latitude & longitude coordinate values representing the location of the LNG facility. (point features)



# PART A: DIGITAL GEOSPATIAL SUBMISSIONS

# Creating Digital Pipeline Data

- Digital data is preferred over paper maps.
- Several sources useful in creating digital pipeline data:
  - USGS DLG and DRG files (heads-up digitizing).
  - Operator alignment sheets.
  - USGS paper quads.

# Digital Data Submission

- Considerations when submitting digital geospatial data:
  - Data may be unprojected or in a common projection scheme (UTM, State Plane).
  - Clearly state datum, coordinate system/projection, and measurement units.
  - 500’ accuracy goal.
  - Determine the best format for submitting data.

# Digital Data Submission

- Accepted digital media:
  - CD-ROMs
  - Diskettes
  - Zip Disks
  - Internet Transmission (check with the specific repository for details)

# Digital Data Submission Formats

- ESRI ARC/INFO Export
  - Submit an .E00 file (geospatial and attribute data.)
- ESRI ArcView
  - Submit a .SHP file (geospatial data), the .SHX (index file), and the .DBF file (attribute data).

# Digital Data Submission Formats

- Intergraph FRAMME - Two Options
  - Microsoft Access Format
  - FRAMME Loader SEF Format
  - Each format contains both the geospatial and attribute data.

# Digital Data Submission Formats

- Intergraph/Bentley Microstation and non-FRAMME
  - Submit a .DGN file (geospatial data) and then use the *NPMS Attribute Data Template* for the attribute data.
- MapInfo (version 3 or higher)
  - Submit the .MIF, .MID, and projection (ASCII format) files for each table.
  - The projection must be noted.

# Digital Data Submission Formats

- AutoCAD -- must be geographically referenced before it is acceptable to the NPMS. In addition, must conform to the datum, projection, scale, and control requirements in the Standards.
  - Save the drawing as a Version 12 .DWG file (geospatial data) in model space.
  - Use the *NPMS Attribute Data Template* to create the attribute data.

# Digital Data Submission Formats

- Smallworld
  - Use Feature Manipulation Engine (FME) or Safe Software Inc. to create an Arc/Info exchange (.E00) file (geospatial and attribute data).

# Digital Data Submission Formats

- Generic Digital Data -- Pipelines
  - ASCII format file.
  - The file represents the geospatial data.
  - Each line segment is made up of at least two coordinate pairs...beginning and ending points.
  - Additional coordinate pairs represent shape points along the line segment.
  - Use the *NPMS Attribute Data Template* to create the attribute data.

# Digital Data Submission Formats

- Generic Digital Data -- Pipelines
  - A unique OPER_LINK identifies each line segment.
  - An END identifies the end of a line segment.
  - An additional END identifies the end of the file.

# Pipeline ASCII Submission

| OPER_LINK | LONGTITUDE | LATITUDE |
|---|---|---|
| | -94.576415 | 32.911658 |
| | -94.576456 | 32.912639 |
| END | *** Marks the end of line segment. | |
| | -94.456415 | 33.001658 |
| | -94.456797 | 33.000681 |
| | -94.457108 | 33.000284 |
| | -94.457801 | 32.999916 |
| END | *** Marks the end of a line segment. | |
| | -94.457801 | 32.999916 |
| | -94.457153 | 33.001479 |
| | -94.456883 | 33.002639 |
| END | *** Marks the end of a line segment. | |
| . | | |
| . | | |
| . | | |
| | -93.541213 | 33.674068 |
| | -93.541416 | 33.674597 |
| | -93.542386 | 33.675404 |
| | -93.545604 | 33.677437 |
| | -93.546609 | 33.677792 |
| | -93.547025 | 33.677918 |
| END | *** Marks the end of a line segment. | |
| END | *** Marks the end of the file. | |

# Digital Data Submission Formats

- Generic Digital Data -- LNG Facilities
  - ASCII format file.
  - The file represents the geospatial data.
  - Use the *NPMS Attribute Data Template* to create the attribute data.
  - Each point is made up of a coordinate pair.
  - A unique OPER_LINK identifies each point.
  - An END identifies the end of the file.

# LNG Facility ASCII Submission

| OPER_LINK | | | LONGITUDE | | | | | | | | | | | | | | | | | | | LATITUDE | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 |
| | | | | | | | 2 | 0 | 1 | | | - | 9 | 4 | . | 1 | 1 | 5 | 9 | 9 | 7 | | | | 3 | 3 | . | 2 | 5 | 0 | 0 | 0 | 0 | |
| | | | | | | | 2 | 0 | 2 | | | - | 9 | 4 | . | 3 | 8 | 3 | 0 | 0 | 3 | | | | 3 | 3 | . | 2 | 0 | 0 | 0 | 0 | 1 | |
| | | | | | | | 2 | 0 | 3 | | | - | 9 | 3 | . | 8 | 6 | 5 | 9 | 9 | 7 | | | | 3 | 2 | . | 8 | 6 | 5 | 9 | 9 | 9 | |
| | | | | | | | 2 | 0 | 4 | | | - | 9 | 4 | . | 0 | 5 | 0 | 0 | 0 | 3 | | | | 3 | 2 | . | 7 | 8 | 5 | 9 | 3 | 7 | |
| | | | | | | | 2 | 0 | 5 | | | - | 9 | 4 | . | 5 | 9 | 9 | 9 | 9 | 8 | | | | 3 | 3 | . | 5 | 3 | 6 | 2 | 9 | 4 | |
| END | | | *** Marks the end of the file. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# PART B: PAPER GEOSPATIAL SUBMISSIONS

# Pipeline Drafting Requirements

- Two options:
  - Individual Pipelines
  - Pipeline Corridors (right-of-way)
    - Delineate the pipeline with a thin solid line in indelible ink. If multiple pipelines on the same map, use different color markers to distinguish the pipelines. Identify pipeline intersections and segments with a dot.
    - For pipeline a corridor, identify on the map the number of pipelines that are within the corridor.

# Drafting LNG Facilities on Paper Base Maps

- Draft a small square or circle in indelible ink on the map.
- The location should represent the approximate center of the facility.

# Annotate Attribute Data on Paper Base Maps

- Preferred that operators use the *NPMS Attribute Data Template* in providing facility data.
- Operators also have the option of annotating the pipeline and LNG facility attributes directly on the submitted maps.
- Each required attribute field defined in the standards must be depicted on the map.
- Remember the field definition types and length restrictions.

# Hardcopy Representation

- The operator should submit pipeline & LNG facility location information on USGS 7.5’ Quadrangle Maps (1:24,000).
- Where 1:24,000 Quads don’t exist, use the largest scale USGS maps available.

# Hardcopy Representation

- Pipeline inventory and alignment sheets
  - Require a minimum of four geo-referenced control points.
  - Must also include the projection parameters, datum, and graphic scale.
  - Scale should be between 1:24,000 (1” = 2,000’) and 1:2,000 (1” = 100’).
  - Map sheets may not be larger than 36” x 48”.

# Hardcopy Representation

- Third-party base maps
  - Require a minimum of four geo-referenced control points.
  - Must also include the projection parameters, datum, and graphic scale.
  - Scale should be between 1:24,000 (1” = 2,000’) and 1:2,000 (1” = 100’).
  - Map sheets may not be larger than 36” x 48”.

# Hardcopy Representation

- Copyright laws.
- Label each pipeline system.
- Label and mark each pipeline segment.
- Label and mark each pipeline intersection and corridor.
- Build a legend in the margin of each map sheet.

# Hardcopy Representation

- Review for accuracy at map sheet edges.
- Sequential page number.
- Don’t use a photocopier to change base map size or scale.
- Don’t submit maps larger than 36” x 48”.
- Don’t fold maps -- please submit rolled in a tube.

# Hardcopy Representation

- Before submitting pipeline inventory, alignment sheets, or third-part base maps, check with the NPMS national repository to ensure your maps are acceptable.
- Submitted Quad maps should include the entire sheet and not be “cut down.”

# Submitting Paper Maps

- Preference for USGS 7.5 minute quads
- Pipelines and LNG facilities should be drafted to be within the 500’ accuracy standard.
- Draft the pipeline using a thin solid line in indelible ink. Identify pipeline intersections or pipeline segments with a dot.
- Draft the LNG facility with a small square identifying the facilities approximate center.

# Submitting Paper Maps

- The repositories will convert quads on NAD27 to NAD83.
- Clearly label each pipeline with its' SYS_NM.
- If the system is divided into sub systems, clearly mark each SUBSYS_NM on the map.
- Label each pipeline segment with its' PLINE_ID.

# Submitting Paper Maps

- In the margin of each quad, build a legend:
  - operator name.
  - names of the various pipelines on the quad.
  - color used to distinguish each pipeline.
- Consecutively number each quad (for a given submission) using the page/page format. EXAMPLE: “1/34” or “1 of 34”)

# Submitting Paper Maps

- Provide the attribute data using the *NPMS Attribute Template* or annotate directly on each map.
- Provide metadata.

# Conclusion of Attribute and Geospatial Data

National Pipeline Mapping System

# Metadata Template Software
# NPMS Web Site Submitting The Data Repository Operations


Barney Krucoff

NPMS National Repository Manager

Michael Baker Jr. Inc.

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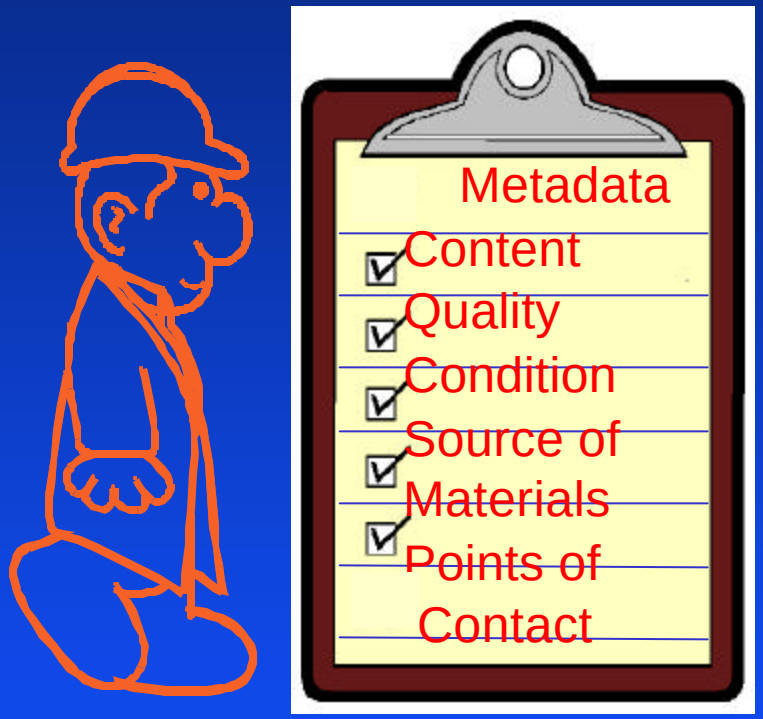
703-317-3073




# SECTION 5: METADATA

# Metadata

- Submission of metadata with the *NPMS Metadata Template* is a requirement.
- Metadata: “data about data.”
- Describes the content, quality, condition, & other characteristics of the data.
- Developed by the Federal Geographic Data Committee (FGDC).
- Requirement for federal agencies.

# Why Metadata Matters

- Spatial accuracy
- Attribute Accuracy
- Logical Consistency
- Completeness
- Lineage

# Metadata

- The NPMS is collecting only the minimal metadata needed.

# *NPMS Metadata Template*

- An *NPMS Metadata Template* has been developed to allow operators to provide digital metadata.
  - FREE
  - Easy to install
  - Ensures that the NPMS repositories will be able to read your metadata.
  - Creates a file that can be edited.
  - Fully supported by the National Repository if you run into trouble.
  - Detailed instructions included in the Standards.

# Metadata

- Operator contact information replaced with repository contact information upon receipt by the repository.
- Single metadata file required when the metadata are the same for an entire data submission.
- Multiple metadata files are required when there is a change in any of the metadata.

# Metadata

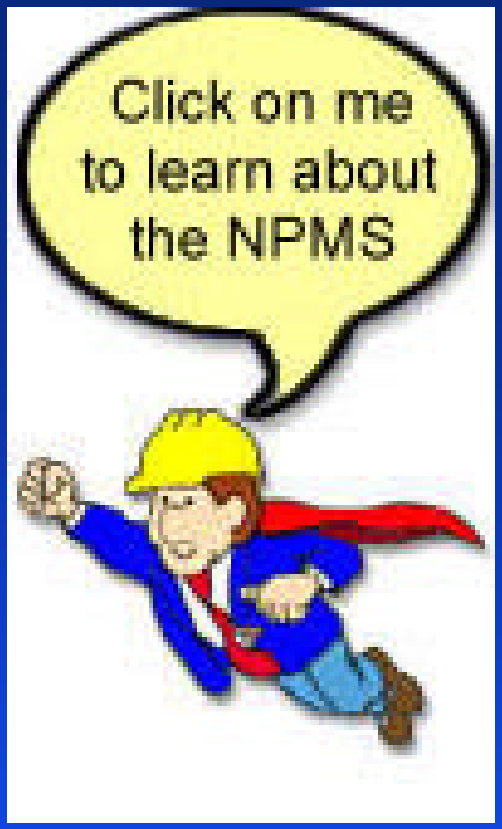
- Additional information on metadata is available at the FGDC WEB site.

www.fgdc.gov

# SECTION 6: SUBMITTING THE DATA

# Operator Submission Checklist

- Attribute Data Submissions
- Hard-Copy Geospatial Data Submissions
- Digital Geospatial Data Submissions
- Metadata Submissions
- Packaging and Sending Data




# SECTION 7:
# NPMS Web Site

www.npms.rspa.dot.gov

# SECTION 8: Repository Operations

# Operations Overview for Operators

- If a state has a mandate for pipeline operators, OPS will work with those states in an attempt to mesh requirements.
- GOAL: To alleviate operators making multiple submissions.
- The operator is only responsible for working with the NPMS in resolving potential data problems.

# Operations Overview for Operators

- What happens to the operator data after the submission:
  - Data is reviewed for completeness and accuracy.
  - The operator is contacted if there are any discrepancies in the submission.
  - Digital and paper data are converted into the format requirements of the repository.

# Operations Overview for Operators

- What happens to the operator data after the submission:
  - After re-formatting, the data will proceed through a series of quality control procedures.
  - A random sampling of submitted data will result in check plots being returned to the operator for quality control.
  - The repository will incorporate any operator changes into the data.

# Operations Overview for Operators

- What happens to the operator data after the submission:
  - Operator data at the state repositories will flow to the National Repository and vice versa.
  - The digital operator data will be provided back to the operators who submitted hard copy maps and request the data.
  - The repositories will continue working with the operators to ensure that the operator data is kept current and that any new systems or facilities are incorporated into the NPMS.

# TIME TO CELEBRATE!!!!